

# How Much Do You Know About Pet Food Formulation Process?

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## 1. Pet Food Processing

Although the nutritional requirements of dogs and cats are substantially different, there are many similarities in the processing technology of manufacturing dog and cat food.

It is known that dogs and cats need specific nutrients. However, individual pets differ greatly in their eating habits. Different individuals sometimes have a preference for certain foods. This is mainly due to differences in habits caused by the pet's previous feeding experience.

This habit may be due to a preference for certain forms of food, such as dry food, semi-moist food, canned food; it may also be due to a preference for food with a certain texture, such as mixed food, soft and wet food, dry food, or containing A special flavor substance such as food containing fish. Sometimes it is difficult to change a pet's eating behavior, even if the new food provided for the pet is nutritionally balanced and meets the needs. The habitual preference of pets for certain foods should not be confused with nutritional needs.



## Dog

Dogs and cats differ in their food habits. Dogs are omnivores, while cats are carnivores. This allows a relatively large free space in the selection of raw materials and the adjustment of formulas in the process of making dog food. It is completely feasible to use ingredients that do not contain animal tissues to produce a food that meets the nutritional needs of dogs. At the same time, dogs have strong adaptability. Therefore, commercially produced dog food with different composition, texture and form can be applied.

## Cat

Although cats are completely carnivores in the wild, many commercial cat foods produced for domestic cats contain considerable amounts of vegetable substances to meet the needs of cats. Commercial cat food generally contains some animal-derived ingredients to meet their needs for special nutrients, such as arachidonic acid and taurine. Animal tissue composition has a significant impact on the acceptability of cat food, so it plays an important role in the appropriate consumption of food. Generally speaking, feeding strictly vegetarian food alone cannot meet the nutritional needs of cats, although these foods are delicious and acceptable to cats.



## 2.The Formula Design Method Of Pet Food.

The actual pet food formulation process requires the application of knowledge of the pet's nutrient requirements. Such as the requirements for energy, amino acids, minerals, vitamins, etc.

Conceptually, a formula is just a process of selecting various raw materials in quantity that can provide the nutritional needs of pets. Therefore, the amount of various nutrients that pets need can be satisfied from the food they consume every day.



The two most basic methods used in food formulations are manual preparation and computer preparation.

In the manual calculation method, only very limited factors including raw material composition and nutrition can be considered. In most cases, the formulator only considers the main nutrients such as protein, calcium, phosphorus and energy. In addition, only a small amount of feed ingredients can be used. For example, a cereal, a vegetable protein powder, an animal protein powder and vitamin-mineral additives. In many cases, accuracy is largely ignored.

Now all commercial companies and qualified consultant nutritionists use computer-based linear programming to design formulas. The value of linear programming is mainly reflected in the ability to process various permutations and combinations of raw material components, nutritional needs and restrictive factors within a few seconds.



Many more advanced programs have preset the NRC nutrition requirement standards of various animals and a large number of raw material nutrition composition tables. For those who know how to use computers, most of the current spreadsheet software programs have the function of linear programming, which enables formula design at the lowest cost.

Some people advocate that "fixed ingredient formula" is more nutritionally superior than "variable ingredient formula". They believe that, on the basis of considering the cost, replace raw materials between different batches of products. It may lead to inconsistencies in product nutritional content and product performance. However, the source of any raw material may change, and the nutrient content of raw materials such as meat, bone meal, soybean meal or cereals may vary greatly between different batches.

Therefore, it is more advisable to design a formula with a fixed range of nutrient requirements rather than a fixed raw material composition. In the pet food industry, it is restricted to substitute raw materials on the basis of the lowest cost, because pet food must be marked with the proper name of each raw material, unlike the common name "collective terms" in livestock feed. (AAFCO, 2002). Therefore, it must be considered that the cost of reprinting the packaging bag can offset the cost savings due to changes in raw material composition.



### 3. Summary Table Of Main Nutrients Of Pet Food

It is a summary table of the main nutritional components of dry dog food, semi-moist dog food and canned dog food. The conditions of various forms of cat food are basically similar. However, due to the diversity of pet food forms and the continuous innovation of the entire pet food industry, it is completely impossible to truly reflect the status of all commercial pet foods.